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PICKERING NGS B
POSTOPERATIONAL AQUATIC STUDY, 1986

Report No 87-194-K

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ABSTRACT

The results of the first year of the Pickering NGS B postoperational study conducted in 1986 are presented. The objective of the study is to describe the fish community of the study area and assess potential effects of the operation of the station on it during the 1986-1988 postoperational phase. Alewife was the most abundant fish taken in monthly beach seining, trap netting and gill netting efforts. Gill net catches indicated an increase in the number of fish of recreational value in the study area over those present during the 1979-1981 Pickering NGS B preoperational study. The average gill net catches of lake trout, brown trout, white perch and round whitefish were higher in 1986 than they were during the preoperational study. Although alewife dominated the 1986 gill net catch numerically, lake trout dominated the catch in terms of biomass. Gill net catches suggested a preference by brown trout, white perch and white bass for the warmer waters of the Pickering NGS B discharge in November. Lake trout stomach analysis indicated an equal consumption of alewife and rainbow smelt while sculpin made up a lesser portion of the forage fish consumed by this species. The largest catch of round whitefish, during the round whitefish spawning study conducted between November 19 and December 16, was taken in the Pickering NGS B discharge 7 m net on December 16. This suggests that the peak spawning period in the study area occurred in December. The catch of a 6.1 m trap net set at Whitby from October 21 through November 25 indicated the presence of substantially larger numbers of lake whitefish in the study area than was indicated by gill net catches.

job	file	date	report no
34-159-401-92	837.321PIC	July 31, 1987	87-194-K

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EXECUTIVE SUMMARY

PICKERING NGS B POSTOPERATIONAL AQUATIC STUDY, 1986

J.K. Kwik
Biological Research Section
Chemical Research Department

The results of the first year of the Pickering NGS B postoperational study conducted in 1986 are presented. The objective of the study is to describe the fish community of the study area and assess the potential effects of station operation on this community during the 1986-1988 postoperational phase. The results will ultimately be compared to data collected during the 1979-1981 Pickering NGS B preoperational study and 1982-1985 interim studies in an effects report. These studies were requested by the Environmental Studies and Assessments Department of the Design and Development Division of Ontario Hydro on behalf of the Pickering Engineering Department.

The 1986 study included monthly fishing by beach seine, trap net, and gill net at the Pickering NGS A discharge, the Pickering NGS B discharge, Duffins Creek and Simcoe Point. A round whitefish spawning study was conducted in the fall between the Pickering NGS B discharge in the west and Thickson Point in the east. In addition, a 6.1 m trap net was set at Whitby to compare its catch with that of the gill nets.

Alewife was the most abundant species in the monthly beach seine, trap net and gill net catches. Gill net catches indicated an increase in the number of fish of recreational value in the study area relative to the preoperational study. The average gill net catches of lake trout, brown trout, white perch and round whitefish were higher in 1986 than they were during the preoperational study. The increases in lake trout and brown trout are believed to be a result of steady increases in stocking initiated in 1972-1973. Gill net catches suggested a preference by brown trout, white perch and white bass for the warmer waters of the Pickering NGS B discharge in November.

Lake trout stomach analysis indicated an equal consumption of alewife and rainbow smelt while sculpin made up a lesser portion of the forage fish consumed by this species.

The largest catch of round whitefish during the round whitefish spawning study, conducted between November 19 and December 16 , was taken in the Pickering NGS B 7 m net on December 16. This suggests that the peak spawning period in the study area occurred in December.

The catch of a 6.1 m trap net set at Whitby from October 21 to November 25 indicated the presence of substantially larger numbers of lake whitefish in the study area than was indicated by gill net catches.

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To: Mr. C.W. Dawson
Environmental Sciences and Technology Section
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PICKERING NGS B POSTOPERATIONAL AQUATIC STUDY, 1986

1.0 INTRODUCTION

Pickering NGS B is a nuclear station consisting of four CANDU powered 540 MW units (Units 5-8) located on the north shore of Lake Ontario at Pickering, Ontario. All four units were in service by February of 1986. Unit 5 first produced electricity in December of 1982, Unit 6 in November of 1983, Unit 7 in November of 1984 and Unit 8 in January of 1986.

The station is situated on the east side of Pickering NGS A which also consists of four CANDU powered 540 MW units (Units 1-4). The two stations have a common surface condenser cooling water intake. Pickering NGS B discharges its cooling water to the east of the development while Pickering NGS A discharges to the west. The calculated temperature increase across the condenser with two pumps per unit and four units operating is estimated at 9.2 C° for Pickering NGS B and 9.7 C° for Pickering NGS A (RMEP-IR-07211-1). Pickering NGS B uses 33.4 m^3 of cooling water per unit per second and Pickering NGS A uses 30.8 m^3 per unit per second.

Units 1 and 2 were out of commission for all of 1986. Both Units 3 and 4 had periods of forced and maintenance outages. Total outage time for Unit 3 was in excess of three months, most of which was during the summer. Unit 4 was out of service for a total period of two months, most of which was in the spring. Units 5, 7, and 8 had maintenance outages and Unit 6 had both forced and maintenance outages. Total outage time for Unit 6 was approximately three months and occurred mainly towards the end of the year. Thus, for most of 1986, combined operational capacity for Pickering NGS A and B was five units (Table 1).

Table 1

Pickering NGS Units Operational During
1986 Beach Seining, Trap Netting and Gill Netting

	Beach Seining	Trap Netting	Gill Netting
May	3,4,6,7	3,4,6,7	3,4,5,6,7
June	4,5,6,7,8	4,5,6,7,8	4,5,8
July	4,5,6,7,8	4,5,6,7,8	4,5,6,7,8
August	4,5,6,7,8	4,5,6,7,8	4,5,6,7,8
September	3,4,6,7,8	3,4,6,7,8	3,4,6,7,8
October	3,4,5,7,8	3,4,5,7,8	3,4,5,7,8
November		3,4,5,8	3,4,5,7,8

A Pickering NGS B preoperational study was conducted between 1979 and 1981 (Ontario Hydro Research Division Report No 84-135-K) and interim studies were conducted during the commissioning period from 1982 through 1985 (Ontario Hydro Research Division Report No 83-435-K, 84-341-K, and 87-149-K).

The results of the first year of the Pickering NGS B postoperational study are presented in this report. The study included monthly fishing at four transects between the Pickering NGS A discharge and Simcoe Point by beach seine, trap net and gill net. A round whitefish spawning study which consisted of gill netting at six locations between the Pickering NGS B discharge and Thickson Point was conducted in November and December. In addition, a 6.1 m trap net was tested at Whitby in October and November to compare its catch with that of the gill nets. The study was requested by the Environmental Studies and Assessment Department of the Design and Development Division on behalf of the Pickering Engineering Department.

1.1 Objectives

The objectives of this study were to describe the fish community of the study area and to assess potential effects of the operation of Pickering NGS B on it during the 1986 to 1988 postoperational phase. The results will ultimately be compared to data collected during the preoperational and interim studies in an effects report. The relative abundance of round whitefish in the study area during their spawning period was also monitored, using a survey method initiated in 1982, to provide an indication of possible spawning activity in the study area. In addition, a 6.1 m trap net was tested to ascertain whether it would more efficiently sample pelagic elements of the fish community.

1.2 Study Area

The study area covered a 15.5 km stretch of Lake Ontario shoreline from the Pickering NGS A discharge in the west to Thickson Point in the east (Figure 1). Transects fished during the regular juvenile and adult fish survey were the Pickering NGS A discharge, Pickering NGS B discharge, Duffin Creek and Simcoe Point. Transects fished by gill net during the round whitefish spawning study were the Pickering NGS B discharge, Simcoe

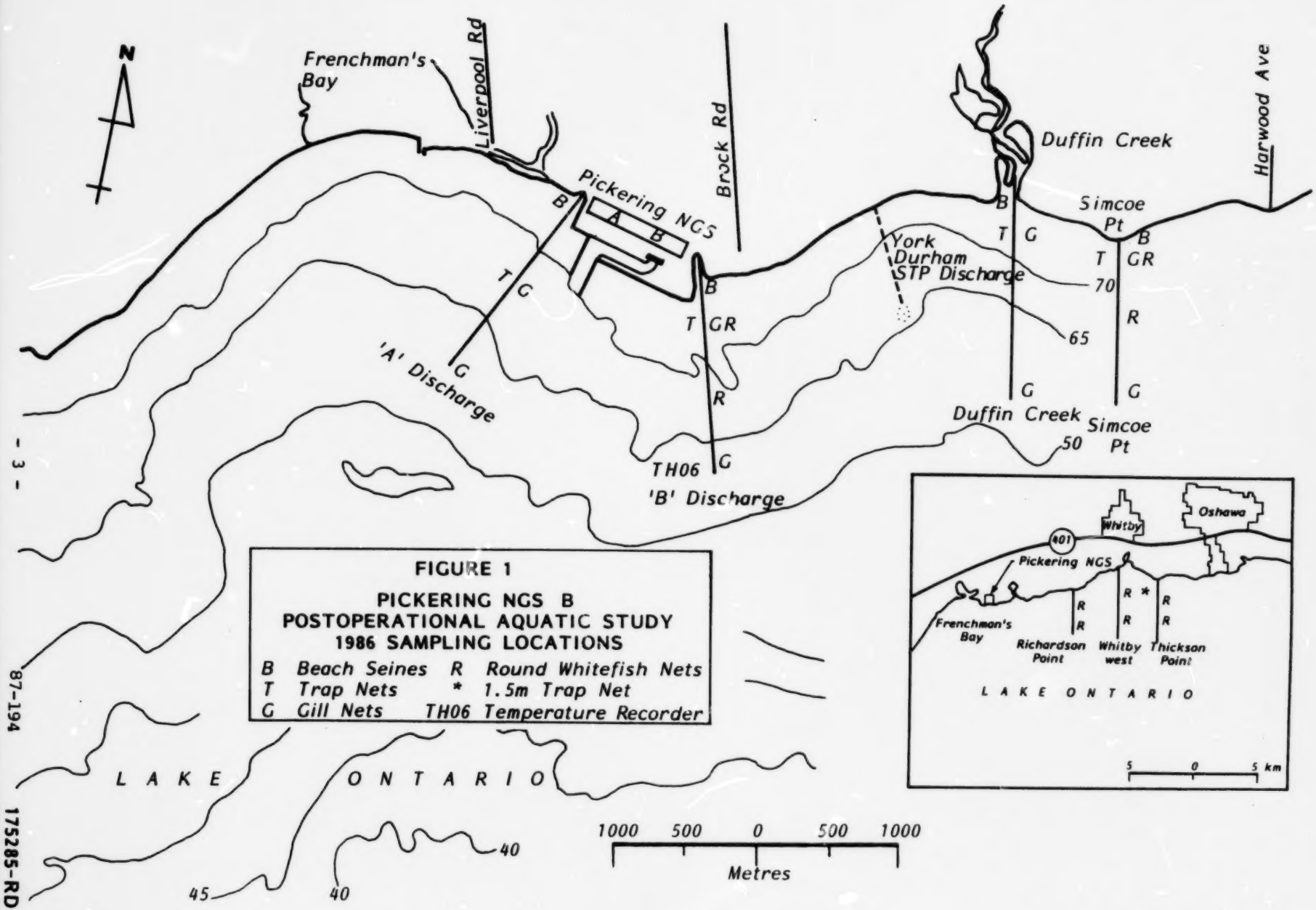

FIGURE 1

PICKERING NGS B
POSTOPERATIONAL AQUATIC STUDY
1986 SAMPLING LOCATIONS

B	Beach Seines	R	Round Whitefish Nets
T	Trap Nets	*	1.5m Trap Net
G	Gill Nets	TH06	Temperature Recorder

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Point, Richardson Point, Whitby West and Thickson Point. The 6.1 m trap net was set at Whitby.

2.0 METHODS

2.1 Juvenile and Adult Fish Survey

Juvenile and adult fish populations were sampled monthly along the four transects (Pickering NGS A discharge, Pickering NGS B discharge, Duffin Creek and Simcoe Point) using beach seines, trap nets and gill nets.

Triplicate beach seine hauls using 15 m seines were taken after dusk monthly from May through October. No beach seine hauls were taken in November as previous studies have demonstrated that few fish are collected in the study area by this method during the late fall (Ontario Hydro Research Division Report Nos 82-266-K, 82-460-K and 83-193-K).

Trap nets were set monthly from May through November. Paired, 1.2 m trap nets were set perpendicular to shore from the 3 m depth for two consecutive 24-hour sets.

Gill nets were set for two consecutive 24-hour sets monthly from May through November. Gill nets consisted of eight 15 m panels with mesh size increasing in 1.3 cm increments from 3.8 to 12.7 cm. The nets were set perpendicular to shore along the bottom at the 3 and 12 m depth contours (depth of inshore end of nets).

Fish were identified to species and counted. Stomach analysis was conducted on a sub-sample of 140 lake trout collected in September, October and November. Fork lengths and weights of salmonids were recorded and scales were collected for submission to the Ontario Ministry of Natural Resources to supplement their data on Lake Ontario salmonids. Coregonid scales were used in age and growth determinations. Fish captured alive were released.

2.2 Round Whitefish Spawning Study

During the 1986 round whitefish spawning investigations, gill nets were set on three occasions between November 18 and December 17 along five transects (Pickering NGS B discharge, Simcoe Point, Richardson Point, Whitby West and Thickson Point). Each net consisted of eight 15 m long panels with mesh size increasing from 3.8 to 12.7 cm in 1.3 cm increments. Nets were set along the bottom at the 3 and 7 m depth contours (depth of inshore end of nets) perpendicular to shore, for a 24-hour period. Round whitefish fork lengths were recorded and scales collected for age and growth determinations. The age and growth data will be presented in a 1986 - 1988 round whitefish spawning summary report. All fish captured alive were released.

2.3 6.1 m Trap Net

The trap net was set perpendicular to shore with the house at a depth of approximately 10 m. The house and lead of the trap net were 6.1 m high. The lead was 213 m long and started at an inshore depth of 7 m.

The trap net was set at Whitby from October 21 through November 25. During this period the trap net was emptied on 14 occasions. Fish were identified to species, counted and released.

3.0 RESULTS AND DISCUSSION

3.1 Water Temperature

Daily mean water temperatures recorded offshore from the Pickering NGS B discharge at a depth of 12 m (Figure 1, THO6) are presented in Figure 2. In 1986, major upwellings, characterized by sharp drops in temperature, occurred in mid- and late August, and mid-September. The only fishing that took place during an upwelling was the August gill netting. However, the gill netting was conducted at the start of the upwelling and temperature declines over the three day period were generally less that 3 C° at all locations except the 3m Pickering NGS A discharge (Appendix I). At this location there was a drop of 7.5 C° at the inshore end of the net.

3.2 Juvenile and Adult Fish Survey

In this section, monthly (May to November) beach seine, trap net and gill net catches are described by gear type. Complete fish catch data for beach seines are presented in Appendix II, for trap nets in Appendix III, and gill nets in Appendix IV. The data are compared with the results of the 1979-1981 preoperational study. The sampling effort during the preoperational study was similar to that of the present study. The common and scientific names of the fish are presented in Appendix V.

Beach Seines

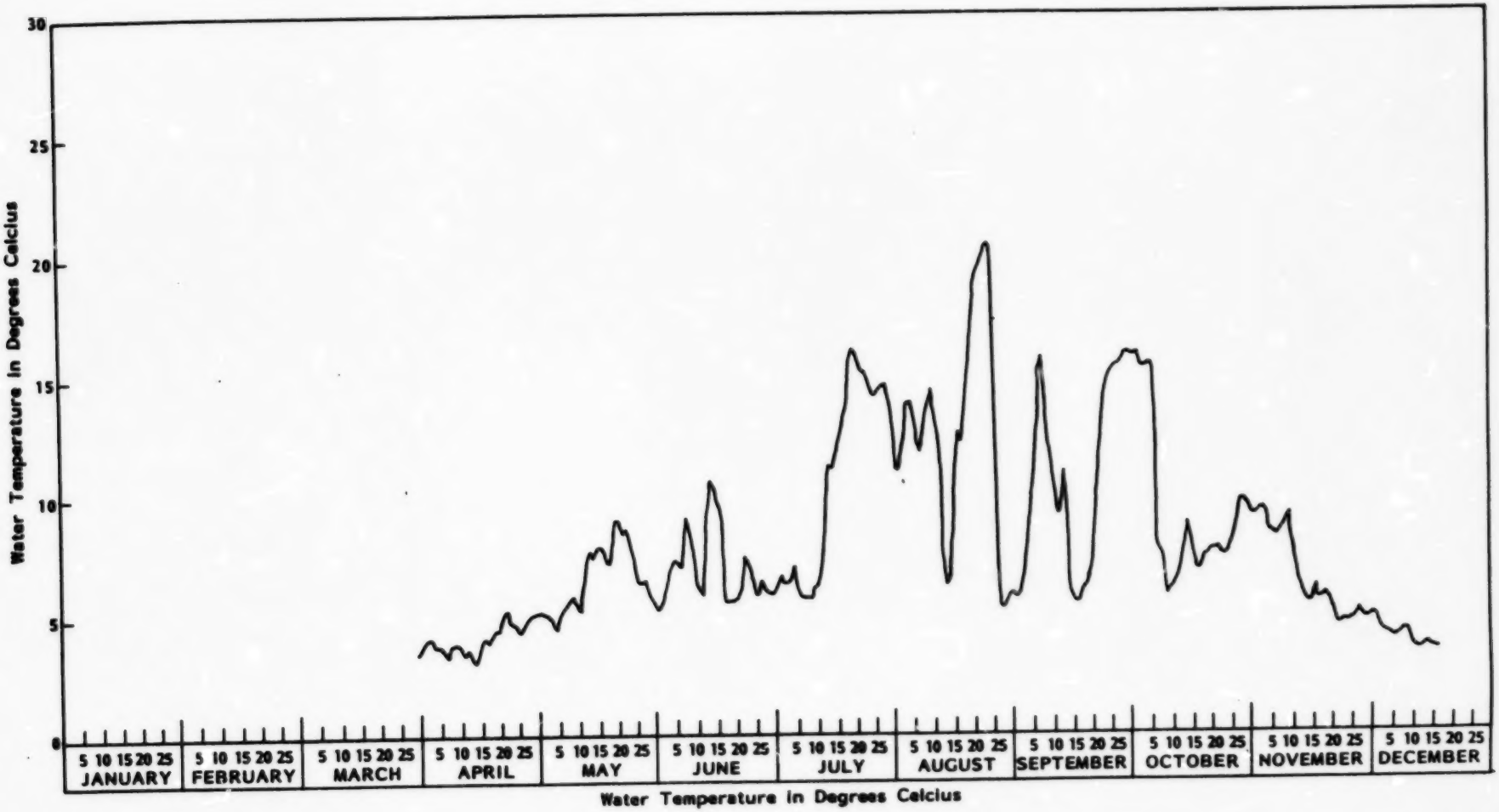
The beach seines sample small fish of the shallow inshore area. Most of the species belonging to large fish species caught by this method were juveniles. Alewife was the most common species in the total beach seine catch making up 74% of the total catch (Table 2). Longnose dace, rainbow smelt, rainbow trout, emerald shiner and spottail shiner were the more common species in the remaining catch.

Beach seine catch was highest in June and lowest in October. Alewife was the main species taken from May through August and longnose dace was the main species in the September and October catches.

Alewife were present in the beach seine catch from May through September. Their numbers increased substantially between May and June and declined sharply between June and July. Their seasonality in the beach seine catch coincided with Graham's (1957) description of the inshore spawning migration of alewife in Lake Ontario. Alewife move inshore from April through July arriving in greatest numbers in June. The adults leave the inshore areas immediately following spawning and start migrating back to deeper waters in late August.

Longnose dace were caught throughout the study period with largest numbers taken in July. Rainbow smelt and rainbow trout were taken in highest numbers in May.

Species diversity of the beach seine catch was highest in August when most of the species belonging to the temperate bass, sunfish and perch families were taken.


30
25
20
15
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0
Water Temperature in Degrees Celcius
5 10 15 20 25 JANUARY
5 10 15 20 25 FEBRUARY
5 10 15 20 25 MARCH
5 10 15 20 25 APRIL
5 10 15 20 25 MAY
5 10 15 20 25 JUNE
5 10 15 20 25 JULY
5 10 15 20 25 AUGUST
5 10 15 20 25 SEPTEMBER
5 10 15 20 25 OCTOBER
5 10 15 20 25 NOVEMBER
5 10 15 20 25 DECEMBER
Water Temperature in Degrees Celcius

FIGURE 2

MEAN DAILY TEMPERATURES AT THE 12 m DEPTH OFFSHORE
FROM THE PICKERING NGS B DISCHARGE
(GEOTECHNICAL AND HYDRAULIC ENGINEERING LOCATION TH06) IN 1986

TABLE 2

NUMBER AND PER CENT COMPOSITION OF FISH CAUGHT
BY BEACH SEINES - PICKERING NGS B 1986

	MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		TOTAL	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
ALEWIFE	62	47.3	689	91.6	34	34.7	19	32.2	11	18.3	0	0.0	815	73.7
LONGNOSE DACE	9	6.9	2	0.3	42	42.9	10	16.9	22	36.7	3	50.0	88	8.0
RAINBOW SMELT	21	16.0	13	1.7	0	0.0	7	11.9	2	3.3	0	0.0	43	3.9
RAINBOW TROUT	21	16.0	13	1.7	6	6.1	2	3.4	0	0.0	0	0.0	42	3.8
EMERALD SHINER	3	2.3	22	2.9	4	4.1	3	5.1	0	0.0	0	0.0	32	2.9
SPOTTAIL SHINER	9	6.9	4	0.5	7	7.1	0	0.0	7	11.7	0	0.0	27	2.4
WHITE PERCH	0	0.0	1	0.1	0	0.0	10	16.9	5	8.3	0	0.0	16	1.4
BROWN BULLHEAD	0	0.0	6	0.8	0	0.0	1	1.7	1	1.7	0	0.0	8	0.7
PUMPKINSEED	0	0.0	0	0.0	0	0.0	1	1.7	6	10.0	0	0.0	7	0.6
BROWN TROUT	4	3.1	0	0.0	0	0.0	0	0.0	0	0.0	2	33.3	6	0.5
SMALLMOUTH BASS	0	0.0	0	0.0	0	0.0	3	5.1	0	0.0	0	0.0	3	0.3
CARP	0	0.0	0	0.0	0	0.0	0	0.0	3	5.0	0	0.0	3	0.3
LOGPERCH	1	0.0	0	0.0	2	2.0	0	0.0	0	0.0	0	0.0	3	0.3
GIZZARD SHAD	0	0.0	0	0.0	0	0.0	0	0.0	3	5.0	0	0.0	3	0.3
BLUNTNOSE MINNOW	0	0.0	0	0.0	2	2.0	0	0.0	0	0.0	0	0.0	2	0.2
SLIMY SCULPIN	0	0.0	2	0.3	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
WHITE BASS	0	0.0	0	0.0	0	0.0	2	3.4	0	0.0	0	0.0	2	0.2
FATHEAD MINNOW	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	16.7	1	0.1
ROCK BASS	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	1	0.1
LAKE CHUB	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	1	0.1
WHITE SUCKER	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
TOTAL	131	100.0	752	100.0	98	100.0	59	100.0	60	100.0	6	100.0	1106	100.0

Average beach seine catch was highest at Duffin Creek (Table 3) mainly due to large catches of alewife at this location in June. Beach seine catch was also higher at Duffin Creek than at the remaining locations in 1979, 1984 and 1985.

Total catch and species diversity of the 1986 beach seine catch were substantially lower than in 1979-1981 (Table 4). As in the present study, alewife was the most abundant species in the 1979-1981 catches. The average catches of alewife, rainbow smelt, spottail shiner, gizzard shad, white sucker and emerald shiner were lower in 1986 than in 1979-1981. In the cases of white sucker and emerald shiner, a decreasing trend was obvious during the preoperational study. Average catches of longnose dace and rainbow trout had increased over those recorded in 1979-1981.

Trap Nets

Alewife was the most common species in the inshore area up to the 3m depth making up 87% of the total trap net catch (Table 5). Brown bullhead (9%) and white sucker (2%) were the second and third most abundant species in the catch. White perch, channel catfish and yellow perch were the more common species in the remainder of the trap net catch.

Total trap net catch was highest in July reflecting the maximum seasonal catch of alewife. Alewife was the most abundant species in the monthly catches from May through July. Brown bullhead was the main species in the catch from August through October and white perch was the main species in the November catch.

Alewife were taken by trap net from May to October. Numbers peaked in July, dropped off sharply between July and August and remained low through October. Brown bullhead, caught by trap nets from May through October, were taken in highest numbers in September.

Average trap net catch was highest at the Pickering NGS B discharge (Table 6) reflecting a high alewife catch at this location in July. Average catch of brown bullhead was highest at the Pickering NGS A discharge where a large number were taken in October. White sucker were also taken in higher numbers at the Pickering NGS A discharge.

The 1986 average trap net catch and species diversity were within the range of those recorded during the preoperational study (Table 7). The species composition of the 1986 trap net catch was most like the 1979 catch. In both years alewife was the most abundant species followed by brown bullhead and then white sucker. In 1981 rainbow smelt were more abundant than white sucker. The 1980 catch was most different in that brown bullhead were more abundant than alewife. The average catch of alewife was substantially higher in 1986 than it was during the preoperational study. The average catch of brown bullhead was within the range obtained in 1979-1981 and those of rainbow smelt, yellow perch and white perch were all lower than the 1979-1981 catches.

Gill Nets

Alewife (78%) was the most abundant species in the total gill net catch followed by lake trout (8%) and white sucker (4%) (Table 8). Among the more abundant species in the remainder of the catch were white perch, round whitefish, gizzard shad and brown trout.

TABLE 3

AVERAGE CATCH PER BEACH SEINE HAUL BY LOCATION - PICKERING NGS B, 1986

	PICKERING A DISCHARGE	PICKERING B DISCHARGE	DUFFIN CREEK	SIMCOE POINT
ALEWIFE	1.9	7.7	24.4	10.3
GIZZARD SHAD	0.0	0.2	0.0	0.0
RAINBOW TROUT	0.2	0.7	1.2	0.2
BROWN TROUT	0.2	0.0	0.1	0.1
RAINBOW SMELT	0.0	0.4	1.3	0.4
WHITE SUCKER	0.0	0.0	0.0	0.1
LAKE CHUB	0.0	0.1	0.0	0.0
CARP	0.2	0.0	0.0	0.0
EMERALD SHINER	1.0	0.2	0.6	0.1
SPOTTAIL SHINER	0.9	0.1	0.5	0.0
BLUNTNOSE MINNOW	0.0	0.1	0.0	0.1
FATHEAD MINNOW	0.0	0.0	0.0	0.1
LONGNOSE DACE	0.1	2.2	1.2	1.1
BROWN BULLHEAD	0.4	0.1	0.0	0.0
WHITE PERCH	0.3	0.1	0.2	0.0
WHITE BASS	0.1	0.0	0.0	0.0
ROCK BASS	0.0	0.0	0.1	0.0
PUMPKINSEED	0.0	0.1	0.2	0.1
SMALLMOUTH BASS	0.1	0.0	0.1	0.0
LOGPERCH	0.0	0.1	0.1	0.0
SLIMY SCULPIN	0.0	0.0	0.0	0.1
TOTAL	5.3	11.9	29.9	12.6

TABLE 4

COMPARISON OF BEACH SEINE CATCH - 1979, 1980, 1981 AND 1986

	1979	1980	1981	1986
	AVERAGE CATCH PER HAUL			
BROWN BULLHEAD	<0.1	<0.1	1.5	0.1
RIANBOW SMELT	1.3	7.6	1	0.6
SPOTTAIL SHINER	2.8	3.2	1.2	0.4
ALEWIFE	18	14.1	36.8	11.3
WHITE PERCH	0.2	0.1	0.5	0.2
GIZZARD SHAD	4.8	0.4	6.6	<0.1
YELLOW PERCH	1.1	0.9	<0.1	0
LONGNOSE DACE	0.7	0.7	0.8	1.2
RAINBOW TROUT	0.1	0.1	<0.1	0.6
FATHEAD MINNOW	<0.1	1.5	1	<0.1
WHITE SUCKER	2.2	0.9	0.5	<0.1
EMERALD SHINER	1.5	2.2	1.2	0.4
BLUNTNOSE MINNOW	<0.1	0.3	<0.1	<0.1
TOTAL	3954	3478	4386	1106
AVERAGE CATCH PER HAUL	47.7	33.4	60.9	15.4
NO OF SPECIES	24	28	29	21

TABLE 5

NUMBER AND PER CENT COMPOSITION () OF FISH COLLECTED IN
TRAP NETS - PICKERING NBS B 1986

	MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		TOTAL	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
ALEWIFE	1924	94.9	1500	94.8	10118	99.2	113	20.8	3	0.4	1	0.2	0	0.0	13659	87.3
BROWN BULLHEAD	15	0.7	7	0.4	10	0.1	308	56.7	745	93.6	336	70.6	0	0.0	1421	9.1
WHITE SUCKER	51	2.5	67	4.2	69	0.7	3	0.6	19	2.4	54	11.3	9	30.0	272	1.7
WHITE PERCH	14	0.7	5	0.3	0	0.0	6	1.1	1	0.1	38	8.0	17	56.7	81	0.5
CHANNEL CATFISH	0	0.0	0	0.0	0	0.0	70	12.9	0	0.0	0	0.0	0	0.0	70	0.4
YELLOW PERCH	5	0.2	0	0.0	0	0.0	27	5.0	16	2.0	12	2.5	1	3.3	61	0.4
CARP	0	0.0	0	0.0	0	0.0	3	0.6	7	0.9	9	1.9	1	3.3	20	0.1
LAKE TROUT	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	2.9	0	0.0	14	0.1
PUMPKINSEED	1	0.0	0	0.0	0	0.0	3	0.6	1	0.1	3	0.6	2	6.7	10	0.1
RAINBOW SMELT	10	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	0.1
WHITE BASS	0	0.0	0	0.0	0	0.0	6	1.1	0	0.0	3	0.6	0	0.0	9	0.1
AMERICAN EEL	5	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0.0
ROUND WHITEFISH	0	0.0	4	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.0
ROCK BASS	2	0.1	0	0.0	0	0.0	2	0.4	0	0.0	0	0.0	0	0.0	4	0.0
SMALLMOUTH BASS	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	2	0.4	0	0.0	3	0.0
WALLEYE	0	0.0	0	0.0	0	0.0	0	0.0	2	0.3	1	0.2	0	0.0	3	0.0
GIZZARD SHAD	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	0	0.0	2	0.0
BROWN TROUT	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	2	0.0
BLACK CRAPPIE	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1	0	0.0	0	0.0	2	0.0
BOWFIN	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.0
TOTAL	2028	100.0	1583	100.0	10197	100.0	543	100.0	796	100.0	476	100.0	30	100.0	15653	100.0

TABLE 6

AVERAGE CATCH PER TRAP NET ALONG FOUR TRANSECTS - PICKERING NGS B 1986

	PICKERING A DISCHARGE	PICKERING B DISCHARGE	DUFFIN CREEK	SIMCOE POINT
ALEWIFE	35.8	322.2	63.9	49.2
BROWN BULLHEAD	40.4	0.1	9.0	1.3
WHITE SUCKER	3.9	1.2	2.6	1.7
WHITE PERCH	1.3	0.5	0.8	0.4
CHANNEL CATFISH	0.4	<0.1	1.6	0.4
YELLOW PERCH	0.2	0.1	1.1	0.6
CARP	0.4	0.1	0.1	0.1
LAKE TROUT	0.1	<0.1	0.4	0.0
PUMPKINSEED	0.2	0.1	0.0	<0.1
RAINBOW SMELT	0.0	0.0	0.0	0.0
WHITE BASS	0.3	0.0	0.1	0.0
AMERICAN EEL	0.0	0.0	0.0	0.0
ROUND WHITEFISH	0.1	<0.1	0.0	<0.1
ROCK BASS	0.1	0.0	0.1	0.0
SMALLMOUTH BASS	<0.1	0.1	0.0	0.0
WALLEYE	<0.1	0.1	0.0	0.0
GIZZARD SHAD	0.1	0.0	0.0	0.0
BROWN TROUT	0.0	0.0	<0.1	0.0
BLACK CRAPPIE	<0.1	<0.1	0.0	0.0
BOWFIN	<0.1	0.0	0.0	0.0
TOTAL	83.2	324.7	79.7	53.8

TABLE 7

COMPARISON OF TRAP NET CATCH - 1979, 1980, 1981 AND 1986

	1979	1980	1981	1986
	AVERAGE CATCH PER NET			
ALEWIFE	24.3	7.1	86.1	121.9
RAINBOW SMELT	0.5	2.4	6.3	0.1
WHITE SUCKER	2.1	3.7	3.2	2.4
BROWN BULLHEAD	16.2	7.5	52.7	12.7
YELLOW PERCH	1.1	3.4	3.4	0.6
WHITE PERCH	1.2	1.0	1.0	0.7
PUMPKINSEED	0.6	0.1	0.3	0.1
TOTAL	5332	3281	14799	15653
AVERAGE CATCH PER NET	47.6	25.8	154.2	139.8
NO OF NETS	112	127	96	112
NO OF SPECIES	17	21	16	20

TABLE 8

NUMBER OF FISH COLLECTED IN GILL NETS
PICKERING NGS B 1986

	MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		TOTAL	
	3M	12M	3M	12M	3M	12M	3M	12M	3M	12M	3M	12M	3M	12M	NUMBER	%
ALEWIFE	1879	2191	1447	884	2196	696	1969	258	796	889	799	683	243	97	15027	84.6
LAKE TROUT	60	40	36	10	6	4	95	82	44	52	123	54	104	112	822	4.6
WHITE SUCKER	60	32	80	16	47	22	117	2	65	54	72	23	55	27	672	3.8
WHITE PERCH	14	2	3	0	0	0	1	0	11	1	42	3	295	15	387	2.2
ROUND WHITEFISH	12	10	14	16	3	11	32	11	8	7	28	35	8	25	220	1.2
BROWN TROUT	11	2	25	0	24	0	18	2	14	2	43	8	24	5	178	1.0
GIZZARD SHAD	1	0	0	0	2	0	0	0	3	0	1	0	163	0	170	1.0
RAINBOW SMELT	4	11	1	4	0	1	1	7	30	37	1	3	0	2	102	0.6
YELLOW PERCH	5	0	1	0	0	0	1	0	9	0	10	1	30	0	57	0.3
COHO SALMON	0	0	2	0	1	1	0	4	4	10	2	0	0	0	24	0.1
WHITE BASS	1	1	0	0	0	0	0	0	2	0	1	0	17	1	23	0.1
CARP	0	0	0	0	0	0	0	0	6	0	2	0	11	0	19	0.1
LONGNOSE SUCKER	7	0	3	1	1	0	0	0	0	0	1	0	0	0	13	0.1
RAINBOW TROUT	1	0	0	0	1	0	0	0	2	1	4	1	2	0	12	0.1
NORTHERN PIKE	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	<0.1
LAKE WHITEFISH	0	1	0	0	0	0	1	0	0	2	0	0	0	2	6	<0.1
LAKE CHUB	0	0	0	0	0	0	0	1	0	2	0	0	0	2	5	<0.1
REDHORSE SUCKER	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3	<0.1
SMALLMOUTH BASS	0	0	0	0	1	0	0	0	0	0	1	0	1	0	3	<0.1
CHANNEL CATFISH	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	<0.1
BROWN BULLHEAD	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	<0.1
FRESHWATER DRUM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	<0.1
WALLEYE	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	<0.1
ROCK BASS	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	<0.1
LAMPREY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	<0.1
LONGNOSE GAR	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	<0.1
CHINOOK SALMON	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	<0.1
TOTAL	2057	2290	1612	931	2282	735	2235	367	1003	1057	1131	812	963	288	17763	

Monthly gill net catches were dominated by alewife throughout the sampling season. Alewife catch was highest in May and remained high through September. The higher numbers present in the study area between May and August was probably part of the spawning migration. During the preoperational study, largest gill net catches of alewife were taken either in May or July.

Lake trout were part of the gill net catch throughout the study period with largest numbers of these fall spawners caught in November.

White sucker were also taken throughout the study period and were taken in slightly higher numbers in August and September than in the remaining months. White suckers spawn in streams or along lake margins from early May to early June (Scott and Crossman 1973). During the preoperational study, largest gill net catches of this species were also taken after their spawning period.

Largest catches of white perch were taken in November. This species was also taken in largest numbers in the fall of each of the preoperational study years. In the Bay of Quinte, Lake Ontario, white perch spawn from mid-May to late June. The low numbers taken during their spawning period may indicate that this species does not spawn in the study area. No larval white perch were caught in larval tows taken in the study area between 1979 and 1981.

The presence of round whitefish throughout the study period is consistent with its description as a shallow water species in the Great Lakes (Scott and Crossman 1973). Largest numbers were caught in October. Spawning of this species in the Great Lakes region usually does not occur until November (Scott and Crossman 1973). Although ripe females were present in the October catch, the relatively large catch taken in this month was not part of the peak spawning run (see round whitefish spawning section).

Gizzard shad were taken almost exclusively in November when 163 out of a total of 170 fish were caught. During the preoperational study they were taken in highest numbers in October of each year (Ontario Hydro Research Division Report No 84-135-K).

Largest numbers of rainbow smelt were caught in September. Maximum gill net catch of rainbow smelt were taken in May-June in 1979 and 1980, and in September in 1981. Since rainbow smelt spawn in early spring, the spawning migration peaks may have been over before the 1981 and 1986 sampling seasons were initiated.

Total gill net catch was substantially lower at the Pickering NGS B discharge than at the remaining locations due to the lower numbers of alewife taken at this location (Table 9). Alewife catch was lower at the Pickering NGS B discharge throughout the study period. This spatial distribution did not appear to be related to temperature since the temperatures at the Pickering NGS B discharge were not consistently higher than the remaining locations. As in 1984 and 1985, lake trout were taken in increasing numbers from west to east. Both lake trout and white sucker were more abundant at 3 m than at 12 m.

TABLE 9

AVERAGE GILL NET CATCH BY LOCATION - PICKERING NGS B 1986

	PICKERING A DISCHARGE	PICKERING B DISCHARGE	DUFFINS CREEK	SIMCOE POINT
ALEWIFE	4582	1707	3940	4798
LAKE TROUT	159	205	229	229
WHITE SUCKER	153	133	235	151
WHITE PERCH	88	198	81	20
ROUND WHITEFISH	98	19	69	34
BROWN TROUT	93	36	36	13
GIZZARD SHAD	95	70	4	1
RAINBOW SMELT	31	17	36	18
YELLOW PERCH	12	2	11	32
COHO SALMON	9	2	8	5
WHITE BASS	4	14	2	3
CARP	3	2	14	0
LONGNOSE SUCKER	0	1	8	4
RAINBOW TROUT	4	1	2	5
NORTHERN PIKE	7	0	0	0
LAKE WHITEFISH	1	2	1	2
LAKE CHUB	0	0	1	4
REDHORSE SUCKER	1	0	2	0
SMALLMOUTH BASS	1	1	1	0
CHANNEL CATFISH	0	0	1	1
ROCK BASS	0	0	2	0
FRESHWATER DRUM	1	1	0	0
WALLEYE	0	2	0	0
BROWN BULLHEAD	1	0	1	0
LAMPREY	0	0	0	1
LONGNOSE GAR	0	0	1	0
CHINOOK SALMON	0	0	1	0
TOTAL	5343	2413	4686	5321

TABLE 10

COMPARISON OF GILL NET CATCH - 1979, 1980, 1981 AND 1986

	1979	1980	1981	1986
	AVERAGE CATCH PER NET			
ALEWIFE	160.8	85.4	97.9	134.2
RAINBOW TROUT	16.1	4.8	8.9	0.9
WHITE SUCKER	8.7	4.8	6.6	6.0
BROWN BULLHEAD	2.7	0.7	0.6	<0.1
YELLOW PERCH	2.2	3.0	1.3	0.5
WHITE PERCH	1.4	2.0	1.4	3.5
GIZZARD SHAD	4.7	1.1	3.6	1.5
ROUND WHITEFISH	0.8	0.6	1.2	2.0
BROWN TROUT	0.2	0.4	0.5	1.6
LAKE TROUT	0.0	<0.1	0.0	7.3
TOTAL	19739	15352	15894	17763
AVERAGE CATCH PER NET	199.4	103.7	124.2	158.6
NO OF NETS	99	148	128	112
NO OF SPECIES	22	26	25	27

Some species demonstrated a preference for the discharge areas during November. Species that were taken in higher numbers or exclusively at the 3 m discharge locations in this month included: gizzard shad, brown trout, northern pike, white perch, white bass, smallmouth bass, walleye and freshwater drum. During this fishing period the temperature at the 3 m depth was highest at the Pickering NGS B discharge (Appendix I).

Gizzard shad catch in November was confined to the 3 m discharge nets and was higher in the Pickering NGS A discharge (90) than in the Pickering NGS B discharge (70). Its preference for the Pickering NGS A discharge was also apparent during the preoperational study. Massive impingement of gizzard shad during winter has been reported at several Ontario Hydro generating stations (Ontario Hydro Research Division Report Nos 77-400-K, C78-31-K and 80-226-K) and occurred at Pickering NGS A in 1978 during a severe winter storm.

During this month, brown trout, white perch and white bass were taken in highest numbers at the Pickering NGS B discharge while smallmouth bass and walleye were taken exclusively at this location. The apparent attraction of these species to the discharge was probably related to the warmer temperatures that prevailed here in November. These species also demonstrated preferences for the discharge areas in late fall during the preoperational studies.

Generally, the 1986 gill net catch indicates an increase in the number of fish of recreational value over those present during the preoperational study. Major differences in the 1986 and preoperational study gill net catches were the substantial increases in the average catches of lake trout and brown trout and the drop in the rainbow smelt catch (Table 10). Similar trends were observed during the Pickering NGS B interim studies (Ontario Hydro Research Division Report No 87-149-K). Other differences included a decrease in the average catch of brown bullhead and increases in the catches of white perch and round whitefish. Increases in the average catches of white perch and round whitefish were also observed during the interim studies. The increase in numbers of lake trout and brown trout in the study area is a result of steady stocking of these species since 1972-1973 (Ontario Ministry of Natural Resources unpublished data).

The mean weight of lake trout taken in gill nets in 1986 was 2.8 kg (N=337, SD=1.0). The mean weight of brown trout was 1.8 kg (N=118, SD=1.5). The biomass of lake trout in the total gill net catch, at 2 142 kg, was substantially higher than that of the alewife, estimated at 451 kg (based on an average weight of 30 g, Ontario Hydro Research Division Report No 80-382-K). Thus in terms of biomass, lake trout dominated the 1986 gill net catch over alewife. Similar comparisons of biomass made with the 1984 and 1985 data indicated that alewife dominated the gill net catch both numerically and in terms of biomass in both those years.

Lake Trout Stomach Analysis

Stomach analysis conducted on subsamples of lake trout collected in September, October and November indicated that consumption of alewife and rainbow smelt were approximately similar (Table 11). Alewife made up 46% of the identifiable forage fish in the stomachs and rainbow smelt made up 40%. Sculpin, the only other identifiable forage fish in the lake trout stomachs, made up the remaining 14%. Of the 140 lake trout stomachs collected for analysis, only 33 had contents.

TABLE 11

STOMACH ANALYSIS OF LAKE TROUT COLLECTED FROM SEPTEMBER THROUGH NOVEMBER, 1986

	CONTENTS				
EMPTY STOMACHS	STOMACHS WITH CONTENTS	UNRECOG-NIZABLE	ALEWIFE	SMELT	SCULPIN
		Number of Occurrences			
140	33	14	16	14	5

3.3 Round Whitefish Spawning Study

Complete round whitefish data are presented in Appendix VI and temperature data are presented in Appendix VII.

Round whitefish was the most abundant species taken by gill nets set at the five locations fished between November 19 and December 16 (Table 12). It made up 33% of the total catch. White perch was the next most common species in the catch contributing 22% of the total catch. Lake trout, brown trout and white sucker were among the more common species in the remainder of the catch. White perch was the most common species present in the November 19 and 26 catches and round whitefish was the most common species in the December 18 catch.

In general, our survey results (Darlington 76, 77, 80 and 84; Pickering 1979-1985) have indicated highest catches in early December (Ontario Hydro Research Division Reports Nos 82-266-K, 87-82-K, 87-149-K and draft report). Spent females have been observed only after water temperatures drop below 3-4 °C. This is usually in December. During the present study, largest number of round whitefish were taken on December 17 when 153 of a total of 229 were caught. This suggests that the peak spawning period in our study area in 1986 also occurred in December. Both ripe males and females were caught during this study period.

Lake trout catch decreased from 67 on November 19 to two on December 17. Lake trout generally spawn in late October to early November and disperse after spawning (Scott and Crossman 1973). The drop in numbers of lake trout in the catch may have been a result of the post-spawning dispersal.

Largest number of round whitefish were caught at the Pickering NGS B discharge (Table 13). A substantially larger number of round whitefish were taken in the 7 m nets than in the 3 m nets. The largest single catch of this species was taken in the 7 m net at the Pickering NGS B discharge.

TABLE 12

ROUND WHITEFISH STUDY - PICKERING NGS B 1986
TOTAL FISH CATCH

	NOVEMBER 18-19		NOVEMBER 25-26		DECEMBER 17-18		TOTAL		TOTAL	
	3M	7M	3M	7M	3M	7M	3M	7M	NUMBER	%
ROUND WHITEFISH	9	33	16	18	9	144	34	195	229	32.8
WHITE PERCH	53	10	57	6	25	1	135	17	152	21.8
LAKE TROUT	6	61	5	24	1	1	12	86	98	14.0
WHITE SUCKER	21	17	19	8	18	9	58	34	92	13.2
BROWN TROUT	21	6	8	6	17	9	46	21	67	9.6
CARP	6	0	7	0	2	0	15	0	15	2.1
WHITE BASS	4	0	0	0	10	1	14	1	15	2.1
GIZZARD SHAD	6	0	0	0	7	0	13	0	13	1.9
RAINBOW TROUT	8	0	0	0	0	1	8	1	9	1.3
CHINOOK SALMON	3	0	0	0	0	0	3	0	3	0.4
YELLOW PERCH	0	0	0	2	0	0	0	2	2	0.3
FRESHWATER DRUM	0	0	1	0	1	0	2	0	2	0.3
REDHORSE SUCKER	0	1	0	0	0	0	0	1	1	0.1
TOTAL	137	128	113	64	90	166	340	358	698	100.0

TABLE 13

ROUND WHITEFISH STUDY - PICKERING NGS B, 1986
FISH CATCH BY LOCATION

	PICKERING B DISCHARGE	SIMCOE POINT	RICHARDSON POINT	WHITBY WEST	THICKSON POINT
ROUND WHITEFISH	120	20	19	22	48
WHITE PERCH	90	32	4	22	4
LAKE TROUT	20	28	38	7	5
WHITE SUCKER	20	19	19	20	14
BROWN TROUT	24	18	4	14	7
CARP	0	3	1	10	1
WHITE BASS	4	2	1	7	1
GIZZARD SHAD	4	3	3	3	0
RAINBOW TROUT	2	6	1	0	0
CHINOOK SALMON	0	2	0	1	0
YELLOW PERCH	0	0	0	2	0
FRESHWATER DRUM	1	1	0	0	0
REDHORSE SUCKER	0	1	0	0	0
TOTAL	285	135	90	108	80

During this sampling period, white perch were taken mainly in the Pickering NGS B 3 m nets. Higher catches of this species at this location was probably related to temperature. Temperatures at this location were higher than at the remaining locations on all three fishing occasions.

The average catch of round whitefish at Whitby West and Thickson Point in 1986 was lower at 5.8 fish/net compared to average catches of 6.4 in 1984 and 8.5 in 1985. However, it was higher than the average catches of <4.0 obtained in 1982 and 1983 and <2.1 obtained during the preoperational study. The average catch in the Pickering NGS B discharge in 1981 was 0.7. This was substantially lower than the average catch of 20.0 obtained at this location during the present study.

3.4 6.1 m Trap Net

The main species taken in the 6.1 m trap net set at Whitby between October 21 and November 25 were lake trout (46%) followed by round whitefish (24%) and lake whitefish (12%) (Table 14).

Average catch per day of lake trout declined between November 11 and 18 and subsequently remained low. Maximum numbers were taken between October 22 and October 24 when the average daily catch was 47 fish/net.

The average daily catch of round whitefish generally increased over the fishing period. This increase was probably the result of the inshore spawning migration which, according to gill net catches, peaked in December (see previous section).

Differences between the 6.1 m trap net and gill net catches are believed to be due to differences in the depth of the water column sampled by the two methods. The lead of the trap net was 6.1 m high while the gill nets were only 1.5 m high. Thus the trap net sampled a substantially larger portion of the water column than the gill nets.

The 6.1 m trap net catch differed most from the gill net catches in the numbers of lake whitefish caught. According to the commercial fisherman (E. Semple - personal communication), this species is generally found higher up in the water column than round whitefish. This accounts for the differences in the catches of this species in the 6.1 m trap net and in the gill nets. A total of 144 lake whitefish were taken with the 6.1 m trap net compared to two during the regular monthly survey and none during the round whitefish spawning study.

Lake whitefish usually spawn in November and December in the Great Lakes region (Scott and Crossman 1973), moving into shallow waters for this purpose. Among the lake whitefish taken in the 6.1 m trap net were ripe and spent individuals. Lake whitefish larvae were never captured in tows taken in the study area in early spring during the preoperational study. However, lake whitefish larvae are pelagic and typically move inshore to very shallow water after hatch. Thus, our sampling, aimed at demersal offshore round whitefish larvae, may be inappropriate for lake whitefish larvae.

Whereas no walleye were taken during the regular October fishing survey and only two were taken in November, 19 walleye were caught with the 6.1 m trap net.

TABLE 14

TWENTY FOOT TRAP NET CATCH AT WHITBY - PICKERING NGS B, 1986

	OCT 21	OCT 22	OCT 24	OCT 27	OCT 28	OCT 30	NOV 4	NOV 6	NOV 7	NOV 11	NOV 12	NOV 13	NOV 18	NOV 19	NOV 25		TOTAL	
	AVERAGE CATCH PER DAY																NUMBER	%
LAKE TROUT	21.0	29.0	22.5	47.0	35.0	19.5	19.4	12.5	16.0	10.0		26.0	4.0	4.0	0.8		543	45.9
ROUND WHITEFISH	1.0	1.0	4.0	0.7		1.0	1.2	5.5	7.0		15.0		15.2	27.0	20.3		278	23.5
LAKE WHITEFISH	3.0	3.0	7.5	4.7	11.0	5.0	3.0	3.5	9.0	3.2	2.0	7.0	2.2	4.0	3.3		144	12.2
WHITE SUCKER		1.0	1.5			1.0	1.2			1.0		2.0	5.6	1.0	3.7		69	5.8
WHITE PERCH							0.8	1.5		2.2	2.0	4.0	4.4	5.0	1.5		58	4.9
WALLEYE		1.0		1.0		1.5	1.0	1.0	1.0	0.3		1.0			0.3		19	1.6
BROWN BULLHEAD					6.0	2.0	0.6			0.8	1.0		0.2				18	1.5
CARP		1.0		0.7	2.0		0.4	0.5					0.2		0.3		11	0.9
FRESHWATER DRUM	1.0	3.0		0.3			0.4		1.0				0.2				9	0.8
CHANNEL CATFISH			1.0				0.4		2.0				0.2	1.0			8	0.7
BROWN TROUT			0.5	1.0					2.0	0.3							7	0.6
WHITE BASS								1.0						1.0	0.2		4	0.3
ALEWIFE										0.5							2	0.2
REDHORSE SUCKER															0.3		2	0.2
LONGNOSE SUCKER								1.0									2	0.2
ROCK BASS			0.5														1	0.1
SMALLMOUTH BASS						0.5											1	0.1
BLACK CRAPPIE							0.2										1	0.1
RAINBOW TROUT			0.5														1	0.1
YELLOW PERCH										0.3							1	0.1
LAMPREY						0.5											1	0.1
COHO SALMON									1.0								1	0.1
CISCO									1.0								1	0.1
TOTAL	26.0	39.0	38.0	55.3	54.0	31.0	28.6	26.5	40.0	18.5	20.0	40.0	32.2	43.0	30.8	0.0	1182	100.0

4.0 SUMMARY

Alewife was the most abundant species in the beach seine catch. Average beach seine catch was highest at Duffin Creek mainly due to large catches of alewife at this location. Beach seine catch in 1986 was substantially lower than those obtained during the 1979-1981 preoperational study.

Alewife was also the most common species in the total trap net catch followed by brown bullhead and white sucker. Average trap net catch was highest at the Pickering NGS B discharge reflecting a large catch of alewife at this location in July. Average trap net catch of alewife in 1986 was substantially higher than those recorded during the preoperational study.

Although alewife dominated the gill net catch numerically, lake trout dominated the catch in terms of biomass. Gill net catch was lower at the Pickering NGS B discharge than at the remaining locations due to lower catches of alewife at this location. However, this spatial distribution of alewife did not appear to be related to temperature. Species that demonstrated a preference for the warmer waters of the Pickering NGS B discharge in November included brown trout, white perch, white bass, smallmouth bass and walleye.

Generally, the 1986 gill net catch indicated an increase in the number of fish of recreational value over those present during the preoperational study. The average catches of lake trout, brown trout, white perch and round whitefish had increased over those obtained in 1979-1981.

Stomach analysis of lake trout indicated that consumption of alewife and rainbow smelt was approximately similar while sculpin made up a lesser portion of the forage fish consumed by this species.

Round whitefish was the main species taken during the round whitefish spawning study conducted between November 19 and December 16, 1986. Largest catch was taken in the Pickering NGS B 7 m net on December 16 suggesting that peak spawning period in the study area occurred in December. Comparison of 1986 catch at Whitby West and Thickson Point to those of previous years indicated that the 1986 catch was higher than those obtained in 1982 and 1983 but lower than the 1984 and 1985 catches.

Lake trout, round whitefish and lake whitefish were the most common species taken by the 6.1 m trap net set at Whitby from October 21 through November 25. Differences in the catches of the gill nets and the 6.1 m trap net were attributed to differences in the depth of the water column sampled by the two methods. A major difference was the substantially larger numbers of lake whitefish taken with the 6.1 m trap.

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APPENDIX 1

1986 TEMPERATURES (C) AT PICKERING NGS B TRAP NET LOCATIONS

	PICKERING A DISCHARGE				PICKERING B DISCHARGE				BUFFINS CREEK				SIMCOE POINT			
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST	
	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
MAY 20	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
MAY 21	18.0	I	17.0	I	14.0	I	17.0	I	11.0	I	11.0	I	10.0	I	10.0	I
MAY 22	17.0	I	15.0	I	17.0	I	18.0	I	12.0	I	11.5	I	11.5	I	11.5	I
JUNE 17	13.1	9.0	8.0	8.0	7.7	7.7	9.6	9.2	7.4	7.4	7.8	7.8	7.7	7.7	7.7	7.7
JUNE 18	13.7	9.0	12.9	7.0	9.2	7.9	11.5	7.6	7.9	6.2	8.5	6.0	7.2	7.2	7.2	7.2
JUNE 19	14.0	7.1	14.3	10.0	9.0	7.4	12.4	7.4	7.2	6.7	7.2	6.7	8.0	6.4	8.0	6.4
JULY 14	19.5	14.5	20.5	17.2	16.3	11.5	15.1	11.5	13.2	12.1	13.3	12.3	13.5	12.5	13.5	12.5
JULY 15	17.5	14.3	16.9	14.6	17.2	12.5	18.9	12.4	13.9	12.6	13.7	12.4	13.0	12.6	13.0	12.4
JULY 16	19.6	14.7	19.0	14.0	18.5	14.2	19.8	14.5	14.0	13.7	14.0	13.7	14.4	14.2	14.4	14.2
AUG 19	24.8	24.8	24.6	22.8	22.9	20.6	26.5	20.5	19.4	19.4	19.4	19.4	19.2	19.0	19.1	19.0
AUG 20	25.8	25.6	25.7	24.8	21.7	20.4	24.8	21.5	20.9	20.5	20.7	20.6	20.6	20.3	20.4	20.4
AUG 21	26.1	26.1	26.1	26.1	24.7	21.3	26.3	21.3	21.7	21.6	21.6	21.6	21.5	21.4	21.7	21.5
SEPT 23	23.0	21.1	23.7	21.6	17.7	16.4	19.5	16.4	16.3	16.3	16.3	16.3	16.2	16.0	16.2	16.0
SEPT 24	22.2	17.3	22.2	16.7	15.4	15.2	16.8	15.4	15.4	15.2	15.5	14.7	15.4	15.3	15.4	15.3
SEPT 25	16.4	16.2	16.4	16.2	16.2	15.6	16.2	15.6	17.1	16.8	20.0	17.3	22.0	18.0	20.8	18.2
OCT 27	14.6	13.9	13.8	13.6	9.6	9.3	13.2	10.1	8.6	8.6	9.3	9.3	9.9	9.9	9.9	9.9
OCT 28	16.0	15.4	15.6	15.0	12.0	10.3	14.1	10.0	10.4	10.3	10.2	10.0	11.6	11.1	11.5	11.0
OCT 29	17.8	16.3	15.3	15.3	13.3	12.9	16.1	12.5	10.2	10.2	10.2	10.0	10.7	10.7	10.7	10.7
NOV 18	9.3	9.3	I	I	I	I	I	I	I	I	I	I	I	I	I	I
NOV 19	11.2	10.3	10.3	10.1	8.5	4.7	9.6	4.9	4.1	4.3	I	I	4.7	4.5	4.7	4.5
NOV 21	4.7	4.6	4.7	4.7	3.1	3.0	2.9	2.8	3.7	3.6	3.8	3.8	2.9	2.9	2.6	2.6

I - NO DATA

APPENDIX 1

1986 BOTTOM TEMPERATURES (C) AT PICKERING NGS B GILL NET LOCATIONS

	PICKERING A DISCHARGE				PICKERING B DISCHAGE				DUFFINS CREEK				SIMCOE POINT			
	3M		12M		3M		12M		3M		12M		3M		12M	
	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O
MAY 13	19.9	15.1	8.8	8.7	9.6	9.2	8.0	7.2	9.7	9.2	8.4	8.5	9.3	8.8	7.6	7.5
MAY 14	17.6	14.4	9.5	9.4	9.1	8.5	7.7	7.6	9.3	9.1	8.5	8.9	9.3	8.8	7.2	7.2
MAY 15	13.0	8.9	7.5	7.5	9.8	9.5	7.9	7.8	9.1	8.6	7.9	8.1	8.6	8.4	7.2	7.3
JUNE 9	7.0	6.3	5.4	5.2	8.2	7.8	5.7	5.4	7.6	7.4	6.3	6.2	9.8	9.3	6.5	6.4
JUNE 10	8.6	8.4	4.9	4.9	8.1	7.8	5.6	5.7	7.8	7.4	5.7	5.7	7.6	7.7	5.9	5.9
JUNE 11	6.8	6.9	4.9	5.0	10.3	9.5	5.4	5.4	9.1	7.2	5.7	5.6	10.9	9.7	5.5	5.5
JULY 7	7.6	6.3	4.8	4.8	4.8	6.1	5.6	5.6	6.1[1]	6.2[1]	6.1	6.2	5.5	5.5	I	I
JULY 8	12.3	12.6	5.3	5.1	5.7	5.7	5.7	5.6	6.2[2]	5.8[2]	5.4	5.3	5.8	5.6	5.5	5.3
JULY 9	14.3	9.8	6.0	6.0	7.9	6.1	5.4	5.6	8.3[3]	8.6[3]	5.4	5.4	6.4	6.4	5.6	5.5
AUG 11	15.0	11.9	8.0	7.8	10.9	I	8.1	7.7	10.8	10.4	9.2	9.0	11.9	10.8	9.4	9.0
AUG 12	8.9	8.1	6.4	6.3	9.1	8.8	5.9	5.9	8.5	8.3	6.4	6.4	8.9	8.2	6.4	6.3
AUG 13	7.5	7.1	5.4	5.5	8.8	8.6	6.0	6.0	9.9	9.4	6.7	6.5	10.2	9.0	6.4	6.3
SEPT 8	11.7	11.3	10.5	10.5	12.0	12.0	10.9	10.8	12.0	12.0	11.4	11.4	12.4	11.6	11.6	11.6
SEPT 9	11.8	11.6	10.9	10.6	12.0	11.6	11.0	10.6	11.6	11.4	10.0	9.0	11.0	10.3	8.7	8.5
SEPT 10	12.1	12.2	10.0	9.7	11.5	11.3	10.0	9.9	12.0	11.7	7.5	7.5	7.8	7.5	5.7	5.6
OCT 15	9.2	8.5	7.4	7.4	11.2	10.5	7.9	7.9	9.9	9.4	7.6	7.6	9.5	9.2	7.6	7.6
OCT 16	7.1	6.9	6.7	6.7	8.2	8.3	6.7	6.4	8.5	8.5	7.2	7.1	7.5	7.2	7.0	7.0
OCT 17	7.3	6.8	6.5	6.5	7.9	7.2	7.0	6.9	8.4	7.8	5.7	5.7	6.6	6.7	6.4	6.4
NOV 10	8.5	13.4	7.0	6.3	11.4	10.4	6.1	5.9	8.6	9.0	8.0	7.8	9.6	8.9	7.8	8.0
NOV 11	9.5	9.0	6.5	6.3	11.4	8.7	6.2	6.4	8.4	8.2	8.1	8.4	8.2	8.2	6.4	6.2
NOV 12	7.2	6.2	5.8	5.7	14.6	10.2	5.8	5.7	7.5	7.7	5.5	5.5	6.0	5.9	5.5	5.2

APPENDIX II

PICKERING BEACH SEINE CATCH 1986
MAY

	PK A DISCHARGE			PK B DISCHARGE			DUFFIN CREEK			SIMCOE POINT			TOTAL	% CATCH
	1	2	3	1	2	3	1	2	3	1	2	3		
MAY 20 1986														
ALEWIFE				2		8			1	25	15	11	62	47.33%
GIZZARD SHAD													0	0.00%
RAINBOW TROUT				8	1	1	4	4	2			1	21	16.03%
BROWN TROUT	1	1	1				1						4	3.05%
RAINBOW SMELT					1		9	1	6	3		1	21	16.03%
WHITE SUCKER											1		1	0.76%
LAKE CHUB													0	0.00%
CARP													0	0.00%
EMERALD SHINER			2				1						3	2.29%
SPOTTAIL SHINER	3	2	3	1									9	6.87%
BLUNTNOSE MINNOW													0	0.00%
FATHEAD MINNOW													0	0.00%
LONGNOSE DACE				1		2				2	3	1	9	6.87%
BROWN BULLHEAD													0	0.00%
WHITE PERCH													0	0.00%
WHITE BASS													0	0.00%
ROCK BASS													0	0.00%
PUMPKINSEED													0	0.00%
SMALLMOUTH BASS													0	0.00%
LOGPERCH								1					1	0.76%
SLIMY SCULPIN													0	0.00%
TOTAL	4	3	6	12	2	11	15	6	9	30	19	14	131	100.00%

APPENDIX II CONT.

PICKERING BEACH SEINE CATCH 1986
JUNE

	PK A DISCHARGE			PK B DISCHARGE			DUFFIN CREEK			SIMCOE POINT			TOTAL	% CATCH
	1	2	3	1	2	3	1	2	3	1	2	3		
JUNE 18 1986														
ALEWIFE	12	2	10	67	45	5	53	159	220	28	62	26	689	91.62%
GIZZARD SHAD													0	0.00%
RAINBOW TROUT		3				2		4	2	1	1		13	1.73%
BROWN TROUT													0	0.00%
RAINBOW SMELT				2	2		4	2	1		1	1	13	1.73%
WHITE SUCKER													0	0.00%
LAKE CHUB													0	0.00%
CARP													0	0.00%
EMERALD SHINER	7	2	6	1		2		3	1				22	2.93%
SPOTTAIL SHINER			1					2	1				4	0.53%
BLUNTNOSE MINNOW													0	0.00%
FATHEAD MINNOW													0	0.00%
LONGNOSE DACE				1								1	2	0.27%
BROWN BULLHEAD			6										6	0.80%
WHITE PERCH			1										1	0.13%
WHITE BASS													0	0.00%
ROCK BASS													0	0.00%
PUMPKINSEED													0	0.00%
SMALLMOUTH BASS													0	0.00%
LOGPERCH													0	0.00%
SLIMY SCULPIN												2	2	0.27%
TOTAL	19	7	24	71	47	9	57	170	225	29	64	30	752	100.00%

APPENDIX II CONT.

PICKERING BEACH SEINE CATCH 1986
JULY

	PK A DISCHARGE			PK B DISCHARGE			DUFFIN CREEK			SIMCOE POINT			TOTAL	% CATCH
	1	2	3	1	2	3	1	2	3	1	2	3		
JULY 16 1986														
ALEWIFE	2	3	1	5	3	4	2		1	2	8	3	34	34.69%
GIZZARD SHAD													0	0.00%
RAINBOW TROUT							3	1	1			1	6	6.12%
BROWN TROUT													0	0.00%
RAINBOW SMELT													0	0.00%
WHITE SUCKER													0	0.00%
LAKE CHUB						1							1	1.02%
CARP													0	0.00%
EMERALD SHINER	1						1		1		1		4	4.08%
SPOTTAIL SHINER		2					2	3					7	7.14%
BLUNTNOSE MINNOW						1				1			2	2.04%
FATHEAD MINNOW													0	0.00%
LONGNOSE DACE	1			16	18		2		1	1	2	1	42	42.86%
BROWN BULLHEAD													0	0.00%
WHITE PERCH													0	0.00%
WHITE BASS													0	0.00%
ROCK BASS													0	0.00%
PUMPKINSEED													0	0.00%
SMALLMOUTH BASS													0	0.00%
LOGPERCH					1	1							2	2.04%
SLIMY SCULPIN													0	0.00%
TOTAL	4	5	1	21	22	7	10	4	4	4	11	5	98	100.00%

APPENDIX II CONT.

PICKERING BEACH SEINE CATCH 1986
AUGUST

AUG 20 1986	PK A DISCHARGE 1	2	3	PK B DISCHARGE 1	2	3	DUFFIN CREEK 1	2	3	SIMCOE POINT 1	2	3	TOTAL	% CATCH
ALEWIFE							1		1	15	2		19	32.20%
GIZZARD SHAD													0	0.00%
RAINBOW TROUT						1			1				2	3.39%
BROWN TROUT													0	0.00%
RAINBOW SMELT				1	2		1				3		7	11.86%
WHITE SUCKER													0	0.00%
LAKE CHUB													0	0.00%
CARP													0	0.00%
EMERALD SHINER							2	1					3	5.08%
SPOTTAIL SHINER													0	0.00%
BLUNTNOSE MINNOW													0	0.00%
FATHEAD MINNOW													0	0.00%
LONGNOSE DACE						2		1	2		5		10	16.95%
BROWN BULLHEAD						1							1	1.69%
WHITE PERCH						1	2	2		1	2	2	10	16.95%
WHITE BASS	2												2	3.39%
ROCK BASS							1						1	1.69%
PUMPKINSEED									1				1	1.69%
SMALLMOUTH BASS	2						1						3	5.08%
LOGPERCH													0	0.00%
SLIMY SCULPIN													0	0.00%
TOTAL	4	0	0	1	2	5	8	4	5	16	12	2	59	100.00%

APPENDIX II CONT.

PICKERING BEACH SEINE CATCH 1986
SEPTEMBER

	PK A DISCHARGE			PK B DISCHARGE			DUFFIN CREEK			SIMCOE POINT			TOTAL	% CATCH
SEPT 24 1986	1	2	3	1	2	3	1	2	3	1	2	3		
ALEWIFE	1	2	1				1			4	2		11	18.33%
GIZZARD SHAD					2	1							3	5.00%
RAINBOW TROUT													0	0.00%
BROWN TROUT													0	0.00%
RAINBOW SMELT												2	2	3.33%
WHITE SUCKER													0	0.00%
LAKE CHUB													0	0.00%
CARP		2	1										3	5.00%
EMERALD SHINER													0	0.00%
SPOTTAIL SHINER	1	4	1						1				7	11.67%
BLUNTNOSE MINNOW													0	0.00%
FATHEAD MINNOW													0	0.00%
LONGNOSE DACE							4	1	11	2	3	1	22	36.67%
BROWN BULLHEAD			1										1	1.67%
WHITE PERCH		2	2			1							5	8.33%
WHITE BASS													0	0.00%
ROCK BASS													0	0.00%
PUMPKINSEED					1		1	1	1	1		1	6	10.00%
SMALLMOUTH BASS													0	0.00%
LOGPERCH													0	0.00%
SLIMY SCULPIN													0	0.00%
TOTAL	2	10	6	0	3	2	6	2	13	7	5	4	60	100.00%

APPENDIX II CONT.

PICKERING BEACH SEINE CATCH 1986
OCTOBER

	PK A DISCHARGE			PK B DISCHARGE			DUFFIN CREEK			SIMCOE POINT			TOTAL	% CATCH
OCT 28 1986	1	2	3	1	2	3	1	2	3	1	2	3		
ALEWIFE													0	0.00%
GIZZARD SHAD													0	0.00%
RAINBOW TROUT													0	0.00%
BROWN TROUT	1											1	2	33.33%
RAINBOW SMELT													0	0.00%
WHITE SUCKER													0	0.00%
LAKE CHUB													0	0.00%
CARP													0	0.00%
EMERALD SHINER													0	0.00%
SPOTTAIL SHINER													0	0.00%
BLUNTNOSE MINNOW													0	0.00%
FATHEAD MINNOW												1	1	16.67%
LONGNOSE DACE										1	1	1	3	50.00%
BROWN BULLHEAD													0	0.00%
WHITE PERCH													0	0.00%
WHITE BASS													0	0.00%
ROCK BASS													0	0.00%
PUMPKINSEED													0	0.00%
SMALLMOUTH BASS													0	0.00%
LOGPERCH													0	0.00%
SLIMY SCULPIN													0	0.00%
TOTAL	1	0	0	0	0	0	0	0	0	1	1	3	6	100.00%

APPENDIX III
PICKERING TRAP NET CATCH 1986
MAY

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
MAY 1986	21	22	21	22	21	22	21	22	21	22	21	22	21	22	21	22				
BOWFIN																	0	0	0	0.00%
ALEWIFE			2		14	5	172	295	431	82	775	100	8	3	32	5	543	1381	1924	94.87%
GIZZARD SHAD																	0	0	0	0.00%
BROWN TROUT								1									0	1	1	0.05%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT							6	4									0	10	10	0.49%
WHITE SUCKER			3					8			22	18					0	51	51	2.51%
CARP																	0	0	0	0.00%
BROWN BULLHEAD											12	3					0	15	15	0.74%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL								5									0	5	5	0.25%
WHITE PERCH									2		9	3					2	12	14	0.69%
WHITE BASS																	0	0	0	0.00%
ROCK BASS											1	1					0	2	2	0.10%
PUMPKINSEED								1									0	1	1	0.05%
SMALLMOUTH BASS																	0	0	0	0.00%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH								1			3	1					0	5	5	0.25%
WALLEYE																	0	0	0	0.00%
TOTAL	0	0	5	0	14	5	178	315	433	82	822	126	8	3	32	5	545	1483	2028	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
JUNE

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
JUNE 1986	18	19	18	19	18	19	18	19	18	19	18	19	18	19	18	19				
BOWFIN																	0	0	0	0.00%
ALEWIFE	14		306	310		18	15	6	20	15	27	5	57	23	494	190	147	1353	1500	94.76%
GIZZARD SHAD																	0	0	0	0.00%
BROWN TROUT																	0	0	0	0.00%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH	1		1					1							1		1	3	4	0.25%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER			27	16		5	1	5	5							8	10	57	67	4.23%
CARP																	0	0	0	0.00%
BROWN BULLHEAD			3	4													0	7	7	0.44%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL																	0	0	0	0.00%
WHITE PERCH			2	2												1	0	5	5	0.32%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
PUMPKINSEED																	0	0	0	0.00%
SMALLMOUTH BASS																	0	0	0	0.00%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH																	0	0	0	0.00%
WALLEYE																	0	0	0	0.00%
TOTAL	15	0	339	332	0	23	16	12	25	15	27	5	57	23	495	199	158	1425	1583	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
JULY

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
JULY 1986	15	16	15	16	15	16	15	16	15	16	15	16	15	16	15	16				
BOWFIN																	0	0	0	0.00%
ALEWIFE	30	266	24	50	5600	3150	108	84	118	153	11	1	248	149	47	79	9714	404	10118	99.23%
GIZZARD SHAD																	0	0	0	0.00%
BROWN TROUT																	0	0	0	0.00%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER	61	2				1					3		1		1		65	4	69	0.68%
CARP																	0	0	0	0.00%
BROWN BULLHEAD		4									4	2					4	6	10	0.10%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL																	0	0	0	0.00%
WHITE PERCH																	0	0	0	0.00%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
PUMPKINSEED																	0	0	0	0.00%
SMALLMOUTH BASS																	0	0	0	0.00%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH																	0	0	0	0.00%
WALLEYE																	0	0	0	0.00%
TOTAL	91	272	24	50	5600	3151	108	84	118	153	18	3	249	149	48	79	9783	414	10197	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
AUGUST

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
AUG 1986	20	21	20	21	20	21	20	21	20	21	20	21	20	21	20	21				
BOWFIN		1																		
ALEWIFE																	1	0	1	0.18%
GIZZARD SHAD					19	2	2		28	17	4		5		36		71	42	113	20.81%
BROWN TROUT																	0	0	0	0.00%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER																	0	0	0	0.00%
CARP	1												1		2		1	2	3	0.55%
BROWN BULLHEAD	4	6	79	6	3				1	1							3	0	3	0.55%
CHANNEL CATFISH	1	3	6	1	1				6	187		2	3		6	6	209	99	308	56.72%
AMERICAN EEL									3	43					7	5	51	19	70	12.89%
WHITE PERCH		3				1											0	0	0	0.00%
WHITE BASS			4						2								6	0	6	1.10%
ROCK BASS		2									2						0	6	6	1.10%
PUMPKINSEED		3															2	0	2	0.37%
SMALL MOUTH BASS																	3	0	3	0.55%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH			2		1			1	1	6	4	2	3	1	4	2	0	1	1	0.18%
WALLEYE								1									12	15	27	4.97%
																	0	0	0	0.00%
TOTAL	6	18	91	7	24	3	2	2	41	254	10	4	12	1	55	13	359	184	543	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
SEPTEMBER

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
SEPT 1986	24	25	24	25	24	25	24	25	24	25	24	25	24	25	24	25				
BOWFIN																	0	0	0	0.00%
ALEWIFE												1	2				2	1	3	0.38%
GIZZARD SHAD																	0	0	0	0.00%
BROWN TROUT																	0	0	0	0.00%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER					1			2	6	4		6					11	8	19	2.39%
CARP			4		2				1								3	4	7	0.88%
BROWN BULLHEAD			680	28					6	3	4	21		3			12	733	745	93.59%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL																	0	0	0	0.00%
WHITE PERCH			1														0	1	1	0.13%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
PUMPKINSEED			1														0	1	1	0.13%
SMALLMOUTH BASS							1										0	1	1	0.13%
BLACK CRAPPIE			1														0	1	1	0.13%
YELLOW PERCH		1							1	5	3		4			2	11	5	16	2.01%
WALLEYE						1	1										1	1	2	0.25%
TOTAL	0	1	687	28	3	1	2	2	14	12	7	28	6	3	0	2	40	756	796	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
OCTOBER

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
OCT 1986	28	29	28	29	28	29	28	29	28	29	28	29	28	29	28	29				
BOWFIN																	0	0	0	0.00%
ALEWIFE												1					0	1	1	0.21%
GIZZARD SHAD				2													0	2	2	0.42%
BROWN TROUT											1						0	1	1	0.21%
LAKE TROUT			2					1	2		9						2	12	14	2.94%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER							4	13				4	15	5	7	6	20	34	54	11.34%
CARP			1	5				1					1		1		1	8	9	1.89%
BROWN BULLHEAD			2	315				1	1				6	1	2	8	8	328	336	70.59%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL																	0	0	0	0.00%
WHITE PERCH	4			9		9		1	3		1	2				9	16	22	38	7.98%
WHITE BASS				3													0	3	3	0.63%
ROCK BASS																	0	0	0	0.00%
PUMPKINSEED						1		1								1	1	2	3	0.63%
SMALLMOUTH BASS	1							1									1	1	2	0.42%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH	2		1			1		1	1	1	1	2	1		1		6	6	12	2.52%
WALLEYE				1													0	1	1	0.21%
TOTAL	7	0	6	335	0	11	4	20	7	1	12	9	23	6	11	24	55	421	476	100.00%

APPENDIX III CONT.
PICKERING TRAP NET CATCH 1986
NOVEMBER

	PK A DIS				PK B DIS				DUFFIN CR				SIMCOE PT				TOTAL E	TOTAL W	TOTAL#	% CATCH
	EAST		WEST		EAST		WEST		EAST		WEST		EAST		WEST					
NOV 1986	19	20	19	20	19	20	19	20	19	21	19	21	19	21	19	21				
BOWFIN																	0	0	0	0.00%
ALEWIFE																	0	0	0	0.00%
GIZZARD SHAD																	0	0	0	0.00%
BROWN TROUT																	0	0	0	0.00%
LAKE TROUT																	0	0	0	0.00%
ROUND WHITEFISH																	0	0	0	0.00%
RAINBOW SMELT																	0	0	0	0.00%
WHITE SUCKER					1	1						4		3			5	4	9	30.00%
CARP							1										0	1	1	3.33%
BROWN BULLHEAD																	0	0	0	0.00%
CHANNEL CATFISH																	0	0	0	0.00%
AMERICAN EEL																	0	0	0	0.00%
WHITE PERCH	6	8			2		1										16	1	17	56.67%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
PUMPKINSEED		1	1														1	1	2	6.67%
SMALLMOUTH BASS																	0	0	0	0.00%
BLACK CRAPPIE																	0	0	0	0.00%
YELLOW PERCH												1					0	1	1	3.33%
WALLEYE																	0	0	0	0.00%
TOTAL	6	9	1	0	3	1	2	0	0	0	0	5	0	3	0	0	22	8	30	100.00%

APPENDIX IV
PICKERING GILL NET CATCH 1986
MAY

	PK A DISCHARGE				PK B DISCHARGE				DUFFINS CREEK				SIMCOE POINT							
	3M		12M		3M		12M		3M		12M		3M		12M		TOTAL	TOTAL	TOTAL	% OF
MAY	14	15	14	15	14	15	14	15	14	15	14	15	14	15	14	15	3M	12M	CATCH	CATCH
LAMPREY																	0	0	0	0.00%
LONGNOSE GAR																	0	0	0	0.00%
ALEWIFE	12	354	325	228	26	64	351	236	489	287	448	198	452	195	228	177	1879	2191	4070	93.63%
GIZZARD SHAD	1																1	0	1	0.02%
COHO SALMON																	0	0	0	0.00%
CHINOOK SALMON																	0	0	0	0.00%
RAINBOW TROUT									1								1	0	1	0.02%
BROWN TROUT	4		1	1	3				3	1							11	2	13	0.30%
LAKE TROUT		1	7	2	1		1	2	17	22	11	5	11	8	3	9	60	40	100	2.30%
LAKE WHITEFISH							1										0	1	1	0.02%
ROUND WHITEFISH			4	5					7	1	1			4			12	10	22	0.51%
RAINBOW SMELT			1	1	1		1	1		1	1	1	2		3	2	4	11	15	0.35%
NORTHERN PIKE																	0	0	0	0.00%
LONGNOSE SUCKER									5	1				1			7	0	7	0.16%
WHITE SUCKER	2		16	4	1		3	2	30	16	6	1	2	9			60	32	92	2.12%
REDHORSE SUCKER																	0	0	0	0.00%
LAKE CHUB																	0	0	0	0.00%
CARP																	0	0	0	0.00%
BROWN BULLHEAD																	0	0	0	0.00%
CHANNEL CATFISH																	0	0	0	0.00%
WHITE PERCH	13								1		2						14	2	16	0.37%
WHITE BASS					1						1						1	1	2	0.05%
ROCK BASS										1							1	0	1	0.02%
SMALLMOUTH BASS																	0	0	0	0.00%
YELLOW PERCH	1	2							1	1							5	0	5	0.12%
WALLEYE																	0	0	0	0.00%
FRESHWATER DRUM					1												1	0	1	0.02%
TOTAL	33	357	354	241	34	64	357	241	554	331	470	205	467	217	234	188	2057	2290	4347	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
JUNE

	PK A DISCHARGE				PK B DISCHARGE				DUFFINS CREEK				SIMCOE POINT							
	3N		12N		3N		12N		3N		12N		3N		12N		TOTAL	TOTAL	TOTAL	% OF
JUNE	10	11	10	11	10	11	10	11	10	11	10	11	10	11	10	11	3N	12N	CATCH	CATCH
LAMPREY																	0	0	0	0.00%
LONGNOSE GAR																	0	0	0	0.00%
ALEWIFE	19	17	199	71	114	119	63	43	300	183	198	83	338	357	126	101	1447	884	2331	91.66%
GIZZARD SHAD																	0	0	0	0.00%
COHO SALMON														2			2	0	2	0.08%
CHINOOK SALMON																	0	0	0	0.00%
RAINBOW TROUT																	0	0	0	0.00%
BROWN TROUT	10	5			6	2								2			25	0	25	0.98%
LAKE TROUT	4	1	2	1	3	10	2	1	2	6	2		5	5	1	1	36	10	46	1.81%
LAKE WHITEFISH																	0	0	0	0.00%
ROUND WHITEFISH		1	8	6		4			5	3	1	1		1			14	16	30	1.18%
RAINBOW SMELT	1		2	2													1	4	5	0.20%
NORTHERN PIKE																	0	0	0	0.00%
LONGNOSE SUCKER							1	0	1				1	1			3	1	4	0.16%
WHITE SUCKER	4	4	4	3	2	6	1	1	19	23	2	3	11	11		2	80	16	96	3.78%
REDHORSE SUCKER																	0	0	0	0.00%
LAKE CHUB																	0	0	0	0.00%
CARP																	0	0	0	0.00%
BROWN BULLHEAD																	0	0	0	0.00%
CHANNEL CATFISH																	0	0	0	0.00%
WHITE PERCH	1												1	1			3	0	3	0.12%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
SMALLMOUTH																	0	0	0	0.00%
YELLOW PERCH	1																1	0	1	0.04%
WALLEYE																	0	0	0	0.00%
FRESHWATER DRUM																0	0	0	0	0.00%
TOTAL	40	28	215	83	125	141	67	45	327	215	203	87	356	380	127	104	1612	931	2543	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
JULY

	PK A DISCHARGE				PK B DISCHARGE				DUFFINS CREEK				SIMCOE POINT							
	3M		12M		3M		12M		3M		12M		3M		12M		TOTAL	TOTAL	TOTAL	% OF
JULY	8	9	8	9	8	9	8	9	9	10	8	9	8	9	8	9	3M	12M	CATCH	CATCH
LAMPREY																	0	0	0	0.00%
LONGNOSE GAR																	0	0	0	0.00%
ALEWIFE	473	1607	11	30	19	6	53	126	49	6	67	64	19	17	280	65	2196	696	2892	95.86%
GIZZARD SHAD		2															2	0	2	0.07%
COHO SALMON	1			1													1	1	2	0.07%
CHINOOK SALMON																	0	0	0	0.00%
RAINBOW TROUT	1																1	0	1	0.03%
BROWN TROUT	14	7				1								2			24	0	24	0.80%
LAKE TROUT	1	3		2					1			1		1	1		6	4	10	0.33%
LAKE WHITEFISH																	0	0	0	0.00%
ROUND WHITEFISH	2		5	2		1						3				1	3	11	14	0.46%
RAINBOW SMELT															1		0	1	1	0.03%
NORTHERN PIKE																	0	0	0	0.00%
LONGNOSE SUCKER										1							1	0	1	0.03%
WHITE SUCKER	23	10	3	13	1	1	1	1	4	6	1	3	1	1			47	22	69	2.29%
REDHORSE SUCKER																	0	0	0	0.00%
LAKE CHUB																	0	0	0	0.00%
CARP																	0	0	0	0.00%
BROWN BULLHEAD																	0	0	0	0.00%
CHANNEL CATFISH																	0	0	0	0.00%
WHITE PERCH																	0	0	0	0.00%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
SMALLMOUTH BASS	1																0	0	0	0.00%
YELLOW PERCH																	1	0	1	0.03%
WALLEYE																	0	0	0	0.00%
FRESHWATER DRUM																	0	0	0	0.00%
																0	0	0	0	0.00%
TOTAL	516	1629	19	48	20	9	54	127	54	13	68	71	20	21	282	66	2282	735	3017	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
AUGUST

	PK A DISCHARGE				PK B DISCHARGE				DUFFINS CREEK				SHCOE POINT							
	3M		12M		3M		12M		3M		12M		3M		12M		TOTAL	TOTAL	TOTAL	% OF
AUGUST	12	13	12	13	12	13	12	13	12	13	12	13	12	13	12	13	3M	12M	CATCH	CATCH
LAMPREY																	0	0	0	0.00%
LONGNOSE GAR																	0	0	0	0.00%
ALEWIFE	199	57	30	36	16	89	8	9	87	56	15	8	746	719	137	15	1969	258	2227	85.59%
GIZZARD SHAD																	0	0	0	0.00%
COHO SALMON			1	1			1								1		0	4	4	0.15%
CHINOOK SALMON																	0	0	0	0.00%
RAINBOW TROUT																	0	0	0	0.00%
BROWN TROUT	3	2	2		1	2			5	2			1	2			18	2	20	0.77%
LAKE TROUT	4	7	12	4	7	8	18	7	18	7	22	2	16	28	11	6	95	82	177	6.80%
LAKE WHITEFISH						1											1	0	1	0.04%
ROUND WHITEFISH	2	19	3	1					9	2	1	4				2	32	11	43	1.65%
RAINBOW SMELT	1		3				3								1		1	7	8	0.31%
NORTHERN PIKE																	0	0	0	0.00%
LONGNOSE SUCKER																	0	0	0	0.00%
WHITE SUCKER	1	8			28	26			9	14	1		8	23	1		117	2	119	4.57%
REDHORSE SUCKER																	0	0	0	0.00%
LAKE CHUB																1	0	1	1	0.04%
CARP																	0	0	0	0.00%
BROWN BULLHEAD																	0	0	0	0.00%
CHANNEL CATFISH																	0	0	0	0.00%
WHITE PERCH	1																1	0	1	0.04%
WHITE BASS																	0	0	0	0.00%
ROCK BASS																	0	0	0	0.00%
SMALLMOUTH BASS																	0	0	0	0.00%
YELLOW PERCH	1																1	0	1	0.04%
WALLEYE																	0	0	0	0.00%
FRESHWATER DRUM																0	0	0	0	0.00%
TOTAL	212	93	51	42	52	126	30	16	128	81	39	14	771	772	151	24	2235	367	2602	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
SEPTEMBER

	PC A DISCHARGE				PC B DISCHARGE				DUFFINS CREEK				SIMCOE POINT							
	3M		12M		3M		12M		3M		12M		3M		12M		TOTAL	TOTAL	TOTAL	% OF
SEPT	9	10	9	10	9	10	9	10	9	10	9	10	9	10	9	10	3M	12M	CATCH	CATCH
LAMPREY																	0	0	0	0.00%
LONGNOSE GAR																	0	0	0	0.00%
ALEWIFE	98	103	166	152		53	90	38	237	140	222	31		165	45	145	796	889	1685	81.80%
GIZZARD SHAD	2									1							3	0	3	0.15%
COHO SALMON			3	1			1		2		2	3		2			4	10	14	0.68%
CHINOOK SALMON																	0	0	0	0.00%
RAINBOW TROUT	1		1											1			2	1	3	0.15%
BROWN TROUT	5	3	1						3	3					1		14	2	16	0.78%
LAKE TROUT	11	17	4	1	1	1	15	15	5	7	4	7	1	1	2	4	44	52	96	4.66%
LAKE WHITEFISH			1									1					0	2	2	0.10%
ROUND WHITEFISH	6	1	2	3			1							1	1		8	7	15	0.73%
RAINBOW SMELT	6	3	10			1	7	3	11	7	9	3		2	5		30	37	67	3.25%
NORTHERN PIKE	4	1															5	0	5	0.24%
LONGNOSE SUCKER																	0	0	0	0.00%
WHITE SUCKER	9	12	5		7	2	4	2	17	6	12	13	7	5	15	3	65	54	119	5.78%
REDHORSE SUCKER									2								2	0	2	0.10%
LAKE CHUB											1				1		0	2	2	0.10%
CARP	1								2	3							6	0	6	0.29%
BROWN BULLHEAD									1								1	0	1	0.05%
CHANNEL CATFISH										1							1	0	1	0.05%
WHITE PERCH	6				1				4		1						11	1	12	0.58%
WHITE BASS														2			2	0	2	0.10%
ROCK BASS																	0	0	0	0.00%
SMALLMOUTH BASS																	0	0	0	0.00%
YELLOW PERCH	3								2	2			2				9	0	9	0.44%
WALLEYE																	0	0	0	0.00%
FRESHWATER DRUM																0	0	0	0	0.00%
TOTAL	152	140	193	157	9	57	118	58	286	170	251	58	10	179	70	152	1003	1057	2060	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
OCTOBER

	PK A DISCHARGE								PK B DISCHARGE								DUFFINS CREEK								SIMCOE POINT										
	3M			12M					3M			12M					3M			12M					3M			12M								
OCT	16		17	16		17	16		17	16		17	16		17	16		17	16		17	16		17	16		17	16		17	TOTAL 3M	TOTAL 12M	TOTAL CATCH	% OF CATCH
LAMPREY																															0	0	0	0.00%
LONGNOSE GAR																															0	0	0	0.00%
ALEWIFE	60			91		106	2			61		91	126		341	124		66	177		93	18		126	799	683	1482	76.27%
GIZZARD SHAD															1										1	0	1	0.05%
COHO SALMON	1														1										2	0	2	0.10%
CHINOOK SALMON																									0	0	0	0.00%
RAINBOW TROUT				1			1												3						4	1	5	0.26%
BROWN TROUT	12		9	1			7		2				6		4	5		1	2		1			1	43	8	51	2.62%
LAKE TROUT	14		12	6		2	8		9	15		5	21		15	11		3	17		27	5		7	123	54	177	9.11%
LAKE WHITEFISH																									0	0	0	0.00%
ROUND WHITEFISH	10		4	2		2	2		2	2		1	2		1	12		8	6		1	3		5	28	35	63	3.24%
RAINBOW SMELT						1												2	1						1	3	4	0.21%
NORTHERN PIKE																									0	0	0	0.00%
LONGNOSE SUCKER																					1				1	0	1	0.05%
WHITE SUCKER	11		1	6		3	7		11			2	12		5	5		4	19		6	2		1	72	23	95	4.89%
REDHORSE SUCKER				1																					0	1	1	0.05%
LAKE CHUB																									0	0	0	0.00%
CARP													2												2	0	2	0.10%
BROWN BULLHEAD																									0	0	0	0.00%
CHANNEL CATFISH																									0	0	0	0.00%
WHITE PERCH	10		11				7		2				6		6			3							42	3	45	2.32%
WHITE BASS			1																						1	0	1	0.05%
ROCK BASS															1										1	0	1	0.05%
SMALLMOUTH BASS													1												1	0	1	0.05%
YELLOW PERCH	3		1				1		1				2		2							1			10	1	11	0.57%
WALLEYE																									0	0	0	0.00%
FRESHWATER DRUM																								0	0	0	0	0.00%
TOTAL	121		39	108		114	35		27	78		99	178		377	157		87	225		129	29		140	1131	812	1943	100.00%

APPENDIX IV CONT.
PICKERING GILL NET CATCH 1986
NOVEMBER

	PK A DISCHARGE				PK B DISCHARGE				DUFFINS CREEK				SIMCOE POINT							
	3H		12H		3H		12H		3H		*12H		*3H		*12H		TOTAL	TOTAL	TOTAL	% OF
NOV	11	12	11	12	11	12	11	12	11	12	11	12	11	12	11	12	3H	12H	CATCH	CATCH
LAMPREY													1				1	0	1	0.08%
LONGNOSE GAR									1								1	0	1	0.08%
ALEWIFE	62	41		35	6	13	11		71	13	19	12	28	9	13	7	243	97	340	27.18%
GIZZARD SHAD	88	2			70					2				1			163	0	163	13.03%
COHO SALMON																	0	0	0	0.00%
CHINOOK SALMON									1								1	0	1	0.08%
RAINBOW TROUT										1				1			2	0	2	0.16%
BROWN TROUT	2	6	3	2	10	2				3			1				24	5	29	2.32%
LAKE TROUT	20	12	2	7	16	11	21	28	14	4	4	18	10	17	10	22	104	112	216	17.27%
LAKE WHITEFISH															2		0	2	2	0.16%
ROUND WHITEFISH	1	1	7	1			2	4	1	1	5	1	4		4	1	8	25	33	2.64%
RAINBOW SMELT											1				1		0	2	2	0.16%
NORTHERN PIKE	1	1															2	0	2	0.16%
LONGNOSE SUCKER																	0	0	0	0.00%
WHITE SUCKER	4		4	3	8	11	4	1	13	5	4	1	12	2	5	5	55	27	82	6.55%
REDHORSE SUCKER																	0	0	0	0.00%
LAKE CHUB															1	1	0	2	2	0.16%
CARP	2				2				5	2							11	0	11	0.88%
BROWN BULLHEAD	1																1	0	1	0.08%
CHANNEL CATFISH														1			1	0	1	0.08%
WHITE PERCH	30	16			105	74	7	2	34	20	3	1	9	7		2	295	15	310	24.78%
WHITE BASS	3				9	4						1		1			17	1	18	1.44%
ROCK BASS																	0	0	0	0.00%
SMALLMOUTH BASS					1												1	0	1	0.08%
YELLOW PERCH										1			29				30	0	30	2.40%
WALLEYE					2												2	0	2	0.16%
FRESHWATER DRUM		1														0	1	0	1	0.08%
TOTAL	214	80	16	48	229	115	45	35	140	52	36	34	94	39	36	38	963	288	1251	100.00%

* 48 HOUR RUN

APPENDIX V

COMMON AND SCIENTIFIC NAMES OF FISH SPECIES COLLECTED DURING THE 1986 PICKERING NGS B POSTOPERATIONAL STUDY

COMMON NAME	SCIENTIFIC NAME
Alewife	Alosa pseudoharengus
White sucker	Catostomus commersoni
Brown bullhead	Ictalurus nebulosus
Lake trout	Salvelinus namaycush
Rainbow smelt	Osmerus mordax
White perch	Morone americana
Round whitefish	Prosopium cylindraceum
Brown trout	Salmo trutta
White bass	Morone chrysops
Spottail shiner	Notropis hudsonius
Gizzard shad	Dorosoma cepedianum
Coho salmon	Oncorhynchus kisutch
Yellow perch	Perca flavescens
Golden shiner	Notemigonus crysoleucas
Longnose dace	Rhinichthys cataractae
Longnose gar	Catostomus catostomus
Carp	Cyprinus carpio
Smallmouth bass	Micropterus dolomieui
Rainbow trout	Salmo gairdneri
Pumpkinseed	Lepomis gibbosus
Lake whitefish	Coregonus clupeaformis
Rock bass	Ambloplites rupestris
Logperch	Percina caprodes
American eel	Anguilla rostrata
Northern pike	Esox lucius
Walleye	Stizostedion vitreum
Slimy sculpin	Cottus cognatus
Lake chub	Couesius plumbeus
Fathead minnow	Pimephales promelas
Black crappie	Pomoxis nigromaculatus
Emerald shiner	Notropis atherinoides
Chinook salmon	Onchorhynchus tshawytscha
Freshwater drum	Aplodinotus grunniens
Bluntnose minnow	Pimephales notatus
Channel catfish	Ictalurus punctatus
Bowfin	Amia calva
Redhorse sucker	Moxostoma sp
Lamprey	Petromyzon sp

APPENDIX VI

PICKERING ROUND WHITEFISH STUDY - NOVEMBER 18-19, 1986

	PICKERING B DISCHARGE		SIMCOE POINT		RICHARDSON POINT		WHITBY WEST		THICKSON POINT		TOTAL 3M	TOTAL 7M	TOTAL
	3M	7M	3M	7M	3M	7M	3M	7M	3M	7M			
LAKE TROUT	1	1		21	2	33	3	3		3	6	61	67
WHITE PERCH	34	6	15	2	1	2	3				53	10	63
ROUND WHITEFISH	2	1	1	9		4	3	4	3	15	9	33	42
WHITE SUCKER	9	1	3	4	3	8	4	1	2	3	21	17	38
BROWN TROUT	11	4	7			1	2		1	1	21	6	27
RAINBOW TROUT	2		5		1						8	0	8
CARP					1		5				6	0	6
GIZZARD SHAD	3		2		1						6	0	6
WHITE BASS	1				1		1		1		4	0	4
CHINOOK SALMON			2				1				3	0	3
REDHORSE SUCKER				1							0	1	1
FRESHWATER DRUM											0	0	0
YELLOW PERCH											0	0	0
TOTAL	63	13	35	37	10	48	22	8	7	22	137	128	265

APPENDIX VI CONT.

PICKERING ROUND WHITEFISH STUDY - NOVEMBER 25-26, 1986

	PICKERING B DISCHARGE		SIMCOE POINT		RICHARDSON POINT		WHITBY WEST		THICKSON POINT		TOTAL 3M	TOTAL 7M	TOTAL
	3M	7M	3M	7M	3M	7M	3M	7M	3M	7M			
WHITE PERCH	35	1	8	1	1		11	3	2	1	57	6	63
ROUND WHITEFISH		6	2		3	4	6	4	5	4	16	18	34
LAKE TROUT		18	2	4	2			1	1	1	5	24	29
WHITE SUCKER	3		10		1	3	3	3	2	2	19	8	27
BROWN TROUT			3	1		1	3	3	2	1	8	6	14
CARP			3				4				7	0	7
YELLOW PERCH								2			0	2	2
FRESHWATER DRUM			1								1	0	1
GIZZARD SHAD											0	0	0
WHITE BASS											0	0	0
CHINOOK SALMON											0	0	0
RAINBOW TROUT											0	0	0
REDHORSE SUCKER											0	0	0
TOTAL	38	25	29	6	7	8	27	16	12	9	113	64	177

APPENDIX VI CONT.

PICKERING ROUND WHITEFISH STUDY - DECEMBER 17-18, 1986

	PICKERING & DISCHARGE		SIMCOE POINT		RICHARDSON POINT		WHITBY WEST		THICKSON POINT		TOTAL 3M	TOTAL 7M	TOTAL
	3M	7M	3M	7M	3M	7M	3M	7M	3M	7M			
ROUND WHITEFISH	4	107	1	7	2	6		5	2	19	9	144	153
WHITE SUCKER	3	4		2	3	1	7	2	5		18	9	27
BROWN TROUT	9		3	4		2	4	2	1	1	17	9	26
WHITE PERCH	14		6				4	1	1		25	1	26
WHITE BASS	3		2				5	1			10	1	11
GIZZARD SHAD	1		1		2		3				7	0	7
CARP							1		1		2	0	2
LAKE TROUT				1	1						1	1	2
RAINBOW TROUT				1							0	1	1
FRESHWATER DRUM	1										1	0	1
YELLOW PERCH											0	0	0
CHINOOK SALMON											0	0	0
REDHORSE SUCKER											0	0	0
TOTAL	35	111	13	15	8	9	24	11	10	20	90	166	256

Appendix VII

1986 Bottom Temperatures at Round Whitefish Spawning Study Gill Net Locations

		Pickering B Discharge				Simcoe Point				Richardson Point				Whitby				Thickson			
		3M		7M		3M		7M		3M		7M		3M		7M		3M		7M	
	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O
Nov 18 - 19	6.1	5.7	5.7	5.7	4.8	4.7	4.6	4.7	-	-	-	-	4.8	5.0	5.1	5.1	-	-	-	-		
Nov 24 & 25	10.9	7.7	5.0	4.5	6.0	6.1	6.4	5.9	5.7	5.4	5.0	4.8	3.8	3.9	3.9	4.4	3.4	3.7	4.0	5.0	
Dec 16 & 17	4.2	3.6	3.0	2.9	3.0	3.0	2.7	2.5	2.8	2.6	2.9	3.2	4.0	4.0	3.2	2.5	3.6	3.6	3.5	3.0	

'- equipment malfunction (frozen)

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